

The buckets are fixed to the chain web *G* at every alternate hinged portion, as shown. This chain is composed of a series of plates with joints projecting internally to gear in with corresponding indentations in the angles of the octagonal revolving drums *H* and *J* above and below and round which the chain-web passes.

The framing carrying these drums may be mounted on the lower tank *K*; the buckets, as they revolve, empty themselves into this tank, which is kept constantly full of water to the level of the overflow *L*.

The shaft *M*, on which the drum is keyed, transmits the power for driving the clock, &c., the pendulum of which regulates the descent of the full buckets in the same manner as with an ordinary weight.

This apparatus can be kept at any reasonable distance from the clock, above or under it, or in the corner of the clock-room itself, as circumstances may best determine, and when once set going, will continue as long as the materials last and the water is supplied.

The plan now exhibited is for driving the works of a large clock, such as that required at the Town Hall. A slight modification of this plan would also adapt it to striking hours and chimes.

As before stated, this system of weights would be self-acting, so long as the supply of water was continued; but as street-mains are liable to contingencies, I have, in order to make this scheme thoroughly complete, introduced a small force-pump *N* between the two cisterns *A* and *K*; and, as the cistern *K* is kept full up to the level of the overflow, all that would be required in the event of the street-main being under repair, would be to pump the water from *K* to *A* until such repairs were effected.

There are no cities or towns of any note in the Australasian colonies without a high-pressure water supply fitted for the purpose I have here described.

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ART. XXIV.—*On Gun Cotton as an Explosive Agent.* By  
R. L. J. ELLERY, ESQ., F.R.C.S.

[Read 12th June, 1871.]

In this paper the President gave a brief account of the properties and manufacture of gun cotton, with a few illustrative experiments.